



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,378	04/01/2004	Andrej Astachow	071308.0536	8247
31625	7590	11/30/2005	EXAMINER	
BAKER BOTTS L.L.P. PATENT DEPARTMENT 98 SAN JACINTO BLVD., SUITE 1500 AUSTIN, TX 78701-4039			HOGAN, JAMES SEAN	
			ART UNIT	PAPER NUMBER
			3752	

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/815,378	Applicant(s) ASTACHOW ET AL.	
	Examiner James S. Hogan	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, and 9-12, 14, 15, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,467,702 to Lambert et al. in view of U.S. Patent No. 6,055,957 to Hasegawa et al.

Regarding claims 1, 14 and 18, Lambert et al. ('702) discloses a fuel injection valve having a valve body, itself having a tip (12). The tip contains injection orifices (15, 21) and a valve needle (generally 12). The seat (12b) at the tip of the valve needle has groove shaped recesses (54, 52, Figure 4) in the tip. Lambert et al. ('702) does not teach the recesses being at the absolute cone of the valve needle. Hasegawa et al. ('957) shows, in figure 4-a, a three-piece injection needle, in disassembled form, where the cone (7) has groove shaped recesses in the cone of the valve needle. As per claims 2, 15 and 19 each recess of Lambert et al. ('702) corresponds at least to a diameter of an injection orifice. As per claims 4 and 10, each recess of Lambert et al.

Art Unit: 3752

('702) appears to have a curvilinear and presumably semi-circular cross-section. As per claim 9, as best that can be reasonably understood, each of the recesses of Lambert et al. ('702) features an arched contour. As per claim 11, the recesses of the injection orifices of Lambert et al. ('702) are adapted to compensate for asymmetrical flow conditions. As per claim 12, shown in Figure 10, an embodiment has features a set of recesses (14) with a triangular cross-section. Therefore one having ordinary skill in the art at the time the invention was made would have modified the recessed valve needle of Lambert et al. ('702) with the recesses groove valve needle cone of Hasegawa et al. ('957) in order to provide a conical seat in a fuel injection valve.

Claims 3, 13, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,467,702 to Lambert et al. in view of U.S. Patent No. 6,055,957 to Hasegawa et al. and further in view of U.S. Patent No. 6,811,105 to Kato et al.

The basis for rejection of claims 3, 13, 17 and 20, claims 1, 14, and 18, are outlined above in the rejection via Lambert et al. ('702) and Hasegawa et al. ('957). Neither Lambert et al ('702) or Hasegawa et al. ('957) show the bottom edge of a stepped-contour recess lying at approximately the same height as the bottom of each orifice. Kato et al, in Figure 5, shows an embodiment with a recess having a stepped contour, whose bottom edge of which lies at the approximate bottom of an orifice (23). It would have been obvious to one skilled in the art at the time the invention was made to have modified the recesses of Lambert et al ('702) and Hasegawa et al. ('957) with

Art Unit: 3752

the alignment of Kato et al. ('105) in order to alleviate leaks and pooling in the bottom of a valve body in a fuel injection device.

Claims 5-8, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,467,702 to Lambert et al. in view of U.S. Patent No. 6,055,957 to Hasegawa et al. and further in view of U.S. patent No. 6,199,539 to Pearlman et al.

The basis for rejection of claims 5-7, 16 and 20, claims 1, 14 and 18, are outlined above in the rejection via Lambert et al. ('702) and Hasegawa et al. ('957). Neither Lambert et al. ('702) or Hasegawa et al. ('957) teach a guide for reducing rotational movements. Pearlman et al. ('539) teaches a slot and key guide (as per claim 6) in the form of a feather key (32, or 42) that engages in a needle guide (10) of the valve needle in a guide groove (38) in a hollow cylindrical surface in the valve body. As per claim 8, the guide groove of Pearlman et al. ('539) runs longitudinally. It would have been obvious to one skilled in the art at the time the invention was made to have modify the injector of Lambert et al. ('702) with the slot and key guide of Pearlman et al. ('539) in order to minimize rotation of a valve member in the injection device to reduce leaks, and to preserve the alignment of other components.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 3752


mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Hogan whose telephone number is (571) 272-4902. The examiner can normally be reached on Mon-Fri, 7:00a-4:00p EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Scherbel can be reached on (571) 272-4919. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11/27/2005
JSH



David A. Scherbel
Supervisory Patent Examiner
Group 3700